



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,245	03/31/2004	Stephen R. Dunne	107213	8147

23490 7590 12/30/2005

JOHN G TOLOMEI, PATENT DEPARTMENT
UOP LLC
25 EAST ALGONQUIN ROAD
P O BOX 5017
DES PLAINES, IL 60017-5017

EXAMINER

SPITZER, ROBERT H

ART UNIT	PAPER NUMBER
----------	--------------

1724

DATE MAILED: 12/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/815,245	DUNNE ET AL.	
	Examiner	Art Unit	
	Robert H. Spitzer	1724	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2005 and 15 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 7 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 7 is indefinite because lines 3 and 4 recite "a regenerating gas" without any correlation to the previous uses of "regenerating gas" in claims 1 and 7. Claim 8 is indefinite because there is no correlation between "a cooling gas" now recited and a "cooling stream" previously recited in claims 1 and 8.
3. Claims 1,2,4,9-13,43-45 and 47-54 are again rejected under 35 U.S.C. 102(b) as being clearly anticipated by both the structure of the rotary adsorber device and its process of operation as shown by Izumo (4,946,479).
4. Claims 16-20,22 and 23 are again rejected under 35 U.S.C. 102(b) as being clearly anticipated by the rotary adsorber device shown by Macriss et al. (4,012,206).
5. Claims 24-30,32-34,36 and 37 are again rejected under 35 U.S.C. 102(b) as being clearly anticipated by the disclosure of Onitsuka et al. (5,158,582).
6. Claims 3,5 and 46 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Mestemaker et al. (5,628,819). The claims differ from the disclosure of Izumo ('479) in the flow of regenerating gas being cocurrent to the flow of the feed gas stream. Mestemaker et al. ('819) show that regenerating gas for an adsorber can be passed through such adsorber in the same direction (cocurrent) as a feed gas stream. It would have been obvious to one of

Art Unit: 1724

ordinary skill in the art, at the time the invention was made, to pass the regenerating gas of Izumo ('479) through the adsorber in the cocurrent direction, in view of such showing of Mestemaker et al. ('819), as such direction will allow a different amount of adsorbed component to be removed.

7. Claims 7,8,14 and 15 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Macriss et al. (4,012,206). The claims differ from the disclosure of Izumo ('479) in the regenerating and cooling gas streams being a portion of the purified gas stream which has been purified by the adsorber material. Macriss et al. ('206) show that for regeneration of an adsorber, both the regenerating gas and the cooling gas streams can be obtained from the purified gas stream which has passed through the adsorber. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize a portion of the purified gas stream to supply either or both of the regenerating gas stream and the cooling gas stream in the adsorbers of Izumo ('479), in view of the showing of Macriss et al. ('206), provided that there is ample purified gas to be able to use a portion thereof for such purpose.

8. Claim 21 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Macriss et al. (4,012,206) in view of Mestemaker et al. (5,628,819). The claim differs from the disclosure of Macriss et al. ('206) in the direction of flow of the regenerating gas being cocurrent to the feed gas direction. Mestemaker et al. ('819) show that regenerating gas for an adsorber can be passed through such adsorber in the same direction (cocurrent) as a feed gas stream. It would have been obvious to one of

Art Unit: 1724

ordinary skill in the art, at the time the invention was made, to pass the regenerating gas of Macriss et al. ('206) through the adsorber in the cocurrent direction, in view of such showing by Mestemaker et al. ('819), as such direction will allow a different amount of adsorbed component to be removed.

9. Claims 31,35 and 38 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Suzuki et al. (2001/0009124). The claims differ from the disclosure of Onitsuka et al. ('582) in there being a third rotary adsorber. Suzuki et al. (2001/0009124) show that a rotary adsorber device can include multiple adsorbers, with up to four being shown. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of Onitsuka et al. ('582) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

10. Claim 39 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Izumo (4,946,479). The claim differs from the disclosure of Onitsuka et al. ('582) in the purified gas stream being further compressed. Izumo ('479) show such compression of the purified gas stream at "11". It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorber device of Onitsuka et al. ('582) with a compressor for the purified gas stream, in view of the showing of Izumo ('479), so that any downstream component that needs gas at an elevated pressure can have such gas sent thereto.

11. Claims 40-42 are again rejected under 35 U.S.C. 103(a) as being unpatentable over Onitsuka et al. (5,158,582) in view of Izumo (4,946,479), as applied in the

Art Unit: 1724

paragraph directly above, further in view of Suzuki et al. (2001.0009124), as applied in paragraph number 9 above. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of modified Onitsuka et al. ('582) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

12. Claim 55 is again rejected under 35 U.S.C. 103(a) as being unpatentable over Izumo (4,946,479) in view of Suzuki et al. (2001/0009124), who apply as in paragraph number 9 above. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to provide the adsorption system of Izumo ('479) with a third adsorber to further purify the feed gas stream, in view of the showing of Suzuki et al. (2001/0009124).

13. Applicant's arguments filed December 15, 2005 have been fully considered but they are not persuasive. With respect to the Izumo ('479) reference, Applicants state that "all of the cited claims require compression of the purified gas stream which is outside the teachings of Izumo". The examiner does not agree because in Izumo ('479), a "blower 11" is shown on the purified gas stream outlet line from the adsorber device. Such a "blower" must increase the pressure of its input stream or it would not be able to pass the gas from its inlet to its outlet. While a "blower" and a "compressor" may produce a different pressure differential, that does not mean that a "blower" cannot also be called a "compressor". As none of the instant claims recite a pressure differential across the "compressor", nor any specific pressure to which the stream passing there-through is raised to, then the rejections based on the Izumo ('479) reference use of a

Art Unit: 1724

blower is maintained. The same reasoning also applies to the other references that utilize a blower. Additionally, with respect to the Macriss et al. reference, Applicants also argue that it does not disclose that the reference adsorber is "capable of producing a dried gas stream containing less than 200 PPM water". The examiner does not agree because the adsorbent utilized in the Macriss et al. device is no different from that used by applicants, thus, it is indeed capable of such level of moisture removal, for the same reasons as applicants device achieves that level. With respect to Onitsuka et al. ('582), its disclosure of the use of serially arranged adsorbent wheels would indeed provide a purified gas stream which has more impurity removed than a single wheel because the passage through the second wheel, which contains an adsorbent for the same component as the first wheel, must remove more of such component as there is more adsorbent material present. With respect to the Mestemaker et al. ('819) reference, its sole purpose is to show that the flow of regeneration gas through an adsorber device can be in the cocurrent direction for regeneration of the adsorber. That teaching is applicable regardless of what component the adsorber is used to remove from the feed gas stream. Thus, the Mestemaker et al. ('819) reference is considered to be pertinent and applicable to claims 3,5 and 46. The same applies to the teaching of Macriss et al. ('206), wherein they show using a portion of the purified gas stream as regenerating and cooling gas. That teaching is applicable regardless of the feed gas being treated. Any other remarks made by applicants and not specifically commented upon by the examiner, have been considered.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

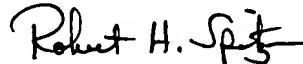
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (571) 272-1167. The examiner can normally be reached on Monday-Thursday from (5:30AM-4:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Art Unit: 1724

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 28, 2005


Robert H. Spitzer
Primary Examiner
Art Unit 1724

December 28, 2005